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| **1**  Introduction :  What is electrochemistry?  Redox Reactions  - Electron transfer  Theory.  - Demo Zinc strip in CuSO4  **F2.1, 2.2** | **2**  Oxidation Numbers and  Redox Reaction Review   * Quiz (AfL/AaL)   **F2.1, 2.2, 3.1** | **3**  Balancing Redox Reactions using the Oxidation Number  **F2.3, 3.1** | **4**  Balancing Redox Reactions using the Half Reaction Method  **F2.3, 3.1** | **5**  Activity series of Metals   * STSE Blog Pt#1   **SPH3U: B2.3** |
| **6**  Introduction to basic cell reactions  - circuits review  - Quiz (AoL)  **SNC1D: 2.1, 2.5, 2.8, 3.1, 3.4, 3.7** | **7**  Lemon battery experiment  (AfL) | **8**  Galvanic cell  **F2.1, 2.2, 2.4, 2.5, 3.2, 3.3** | **9**  Galvanic cell laboratory  – Building a Galvanic cell  (AoL)  **F2.1, 2.2, 2.4, 2.5, 3.2, 3.3** | **10**  Standard cell potentials  **F2.6** |
| **11**  Determination of Ksp  **E2.3, 2.4** | **12**  Determination of Keq  **E2.3, 2.4** | **13**  Corrosion  - Quiz (AoL)  **F1.2, 3.6** | **14**  Lab factors that affect the rate of corrosion Expt  - (AoL)  **F1.2, 3.6** | **15**  Electrolytic cells  - electrolysis  **F2.1, 2.2, 2.4, 2.5, 3.2, 3.3** |
| **16**  Faraday’s law | **17**  Science and Technology of Electrolysis  - STSE Blog Pt#2  - Quiz (AoL)  **F1.1, 1.2, 3.4, 3.5** | **18**  Review | **19**  Unit Test  (AoL) |  |

The electrochemistry, although a standalone unit within the grade 12 chemistry curriculum, builds upon its knowledge as the unit progresses. The unit starts off with understanding the electron transfer process that occurs during a redox reaction. Once students are familiar with the redox equations and terminology, students learn how to balance the redox equations. Within our unit plan, we felt that it was important to scaffold the transition from redox equations to building and understanding how Galvanic cells work. We review the activity series of metals which was covered in the SCH3U course as well introducing basic cell reactions and reviewing circuits from the SNC1D course. This is important because as the unit progresses, the students will be learning about using Galvanic cells in batteries which ties into the STSE component of our course. We built in a little lemon battery experiment to prepare the students for the main Galvanic cell laboratory as an assessment for learning piece. As mentioned in class, the Galvanic cell is the heart of the electrochemistry unit which encompasses all of the previously learned material and will be used as a scaffold for future material. Therefore our group decided that this laboratory would be one of the primary assessments of learning. As a group we wanted to review the Ksp and Keq from the previous SCH4U unit: Chemical systems and Equilibrium because this can be used in more advanced calculations towards the end of the unit. This particular topic, and its focus in electrochemistry, is mainly covered in university so it is optional and the teacher’s judgment is important when implementing more difficult concepts into the classroom. Another important concept featured in the electrochemistry unit, is corrosion which we also look at as part of the STSE component. We decided that looking at some factors that affect corrosion would be an excellent real life way of teaching the STSE focused content and felt that this particular topic would be an enduring learning goal and made the laboratory an assessment of learning activity. We finish off the unit with Faraday’s law, the science, technology, society and the environment based lessons with a unit test as the cumulative assessment. Finally, we built in quizzes throughout the unit to ensure that students are understanding the material since all the content builds upon previous knowledge. We decided to make these quizzes for marks, however they could also be used in an AaL/AfL situation. This would be the sole discretion of the teacher.